L 42192-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6011543 (A,N) SOURCE CODE: UR/0105/66/000/004/0032/0038

AUTHOR: Bul', O. B. (Engineer)

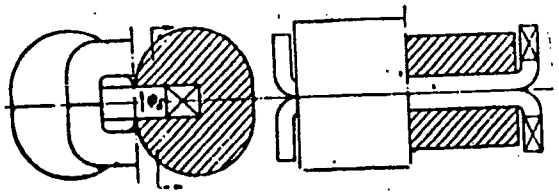
ORG: Moscow Power-Engineering Institute (Moskovskiy energeticheskiy institut)

TITLE: Investigation of a magnetic system with a multilayer coil around the gap

SOURCE: Elektrichestvo, no. 4, 1966, 32-38

TOPIC TAGS: cyclotron magnet, superstrong magnet, gap wound magnet, strong magnetic field, electromagnet

ABSTRACT: An experimental study of a gap-wound no-pole-piece superstrong magnet (see figure) is reported. Flux distribution was investigated, a method of design by simulated patterns on electroconducting paper was developed, and the errors involved were determined. A laminated E41-steel core permitted conducting the experiments with ac. The flux at various cross-sections was measured by 24 probing coils. It was found that the flux is almost independent of the coil width and its mean



Gap-wound magnet

UDC: 621.318.4.013.001.57

Card 1/2

L 42192-66
ACC NR: AP6011543

turn length. More layers in the coil reduce its efficiency in producing the gap flux. Simulated field patterns clearly show the core flux, dispersion, and bulging fluxes. Although the high-cost steel can be completely done away with by an appropriate coil shape (Z. J. J. Stekley et al., MIT Press, 1962, pp. 139-147), the high power consumption of steel-less cores limit their practical application. Conclusions: (1) Increase in coil thickness results in a considerable increase of the dispersion and bulging fluxes; (2) Flux distribution in the magnetic system is well illustrated by the field patterns obtained from an electroconducting-paper simulator; (3) The system can be designed with an error not exceeding 5% by means of the above simulated patterns. Orig. art. has: 7 figures and 17 formulas.

SUB CODE: 18, 09, / SUBM DATE: 21May65 / ORIG REF: 003 / OTH REF: 001
20

Card 2/2 mlf

L 06566-67 EWT(1) IJP(c) AT

ACC NR: AP6029782 SOURCE CODE: UR/0294/66/004/004/0572/0576

56
B

AUTHOR: Bul', B. K. (Moscow); Bul', O. B. (Moscow)

ORG: None

TITLE: Comparison of magnetic systems of various types for a magnetohydrodynamic generator

SOURCE: Teplofizika vysokikh temperatur, v. 4, no. 4, 1966, 572-576

TOPIC TAGS: MHD generator, magnetic circuit, electric generator

ABSTRACT: Data are given from calculation of magnetic systems of various designs (various arrangements of the magnetizing coils) for a low-power MHD generator. The following initial parameters were assumed: 1. induction in the channel -- 20,000 gausses; 2. excitation power -- no greater than 1000 kw; 3. a rectangular duct with a cross section 0.5 m high and 1.25 m wide and a length (depth) of 10 m; 4. the apex angle of the nozzle and diffuser -- 12° on each side; 5. nonhomogeniety of the field on the horizontal axis of symmetry (with respect to the width of the duct) -- less than 15% for the basic modifications compared; 6. winding temperature -- 80°C. In addition to comparing the various types of magnetic systems for the case of identical permissible nonhomogeniety of the field in the channel, computational results are given for two additional modifications with a maximum permissible field nonhomogeniety of 3 and

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L 06566-67

ACC NR: AP6029782 O

30% to show the effect of this quantity on the weight of the magnetic circuit and winding. The winding material in all modifications was rectangular aluminum wire with a circular opening for water cooling. The space factor (disregarding the walls of the coil form) was 0.6 for all magnetic systems considered and the gap in all modifications was 2δ=70 cm (i. e. the upper and lower walls of the duct were each 10 cm thick). The thickness of each sidewall was at least 30 cm. The comparative data for the various magnetic systems are tabulated for analysis. It is found that the most rational design from the standpoint of the weight of the steel used is a magnetic system with the coils wound lengthwise on the air gap and poles. A curve is given for this modification showing the weight of the steel used in the magnetic circuit as a function of maximum field nonhomogeniety across the duct for a uniform field induction in the gap of 20,000 gausses. Orig. art. has: 4 figures, 1 table.

SUB CODE: [redacted] 10, 09/ SUBM DATE: 07Apr65/ ORIG REF: 003

Card 2/2

BUL', P., kand.med.nauk

Therapeutic sleep. Znan.-sila 37 no.11:28-30 N '62. (MIRA 16:1)

(SLEEP THERAPY)

BUL', P. I.

BUL', P. I. -- "An Experiment in theUse of Hypnotherapy in Patients with Bronchial Asthma (Clinical Investigation)." Min Health USSR. First Leningrad Medical Inst imeni Academician I. P. Pavlov. Leningrad, 1955. (Dissertation for the Degree of Candidate in Medical Sciences).

So.: Knizhnaya Letopis', No. 2, 1956.

BUL', P.I.

BUL',P.I.

[Technique of therapeutic hypnosis] Tekhnika vrachebnogo gipnoza (Leningrad) Medgiz, 1955. 67 p. (MLRA 8:11)
(HYPNOTISM--THERAPEUTIC USE)

BUL', Pavel Ignat'yevich; ASTAKHOV, S.N., red.; KHARASH, G.A., tekhn.red.

[Hypnosis and suggestion in the clinical treatment of internal diseases] Gipnoz i vnushenie v klinike vnutrennikh boleznei. Leningrad, Gos.izd-vo med.lit-ry, 1958. 184 p. (MIRA 13:6)
(HYPNOTISM--THERAPEUTIC USE) (MEDICINE, INTERNAL)

PREOBRAZHENSKAYA, I.N., BUL', P.I.

Effect of the second signal system on the shape and position of the stomach. Vrach.delo no.3:301 Mr'58 (MIRA 11:5)

1. Kafedra normal'noy anatomii (zav. - prof. M.G. Prives) i klinika gospital'noy terapii (zav. - deystv. chlen AMN SSSR prof. M.V. Chernorutskiy [deceased]) Pervogo Leningradskogo meditsinskogo instituta.
(HYPNOSIS)
(STOMACH)

BUL', P., kand.med.nauk

Therapeutic use of hypnosis. Znan.sila 36 no.7:19-22 Jl '61.
(MIRA 14:9)
(Hypnotism--Therapeutic use)

BUL', P.

Somnambulism and apparent death. Znan.-sila 38 no.5:52-53 My '63.
(MIRA 16:11)

BUL', V.V., inzh.

Modernization of a reactor with a heating arrangement. Khim.mashinostr, no.2:37-38 Mr-Ap '63. (MIRA 16:4)
(Chemical reactions)

BULA, B.

GARBULINSKI, T.; BULA, B.

Inspecificity of reactions of the circulatory organ to stimuli from so-called isolated extremity and their photo-hemotachometric analysis. Acta physiol. polon. 8 no.1:77-92 1957.

1. Z Zakladu Fizjologii A. M. we Wroclawiu i z Zakladu Fizjologii W. S. W. F. we Wroclawiu Kierownik: prof. dr A. Klisiecki.
(BLOOD CIRCULATION, physiology,
non-specific reactions to stimuli from isolated extremity & photo-hemotachometric analysis in animals (Pol))

T-4

BULA, B.

POLAND / Human and Animal Physiology. Blood Circulation.

Abs Jour : Ref Zhur - Biologiya, No 1, 1959, No. 3413

Author : Garbulinski, T.; Popadiuk, L.; Bula, B.
Inst : Not given
Title : Mechanical and Other Influences on the Blood Circulation in Active Skeletal Muscles

Orig Pub : Acta physiol. polon., 1957, 8, No 2, 165-178

Abstract : The blood flow in the arteries and veins of the hind limb and in the abdominal aorta was recorded in dogs under narcosis by means of a photochematachometer. Rhythmic compression of the limb and, to a lesser degree, stimulation of the muscles or of the sciatic nerve by an electric current and heat, led to an increase of the blood flow which attests to the great importance that the mechanical compression of vessels by muscular fibers has for blood circulation increase in contracting muscle

Card 2/2 Card 1/2 33

Country : POLAND
Category: Human and Animal Physiology. Circulation. Blood Vessels

T

Abs Jour: RZhBiol., No 19, 1958, 88859

Author : Garbulinski, T.; Popadiuk, L.; Bula, B.
Inst : -
Title : The Effect of Massage and Muscular Contractions on Blood Circulation.

Orig Pub: Polski. tygod. lekar., 1957, 12, No 11, 381-383

Abstract: The circulation in the posterior extremities of a dog during massage and muscular contractions was studied with the aid of a photo-hemo-tachometer of Cybulski-Klisiecki, adapted for simultaneous measurement of the blood movement in arteries and veins. A positive effect of exercise of the posterior

Card : 1/3

Country : POLAND
Category: Human and Animal Physiology. Circulation. Blood Vessels

T

Abs Jour: RZhBiol., No 19, 1958, 88859

considerably improves the blood flow in the abdominal aorta. When both extremities are flex simultaneously and very energetically, the blood flow, at the time of the contraction, slows down. The slackening of the blood vessels seems to be a factor facilitating the inflow of blood into the blood vessels of a working organ. -- From the authors' summary.

Card : 3/3

GARBULINSKI, T.; PYTASZ, M.; BULA, B.

Effect of neurohormones on pulmonary arterial circulation. Acta physiol. polon. 10 no.1:47-57 Jan-Feb 59.

1. Z Zakladu Fizjologii A.M. we Wroclawiu Kierownik: prof. dr A. Klisiecki.

(ARTERIES, PULMONARY, eff. of drugs on, neural mediators on circ. (Rus))

BULA, Boleslaw; GOSK, Adam; PARADOWSKI, Andrzej; JUZWA, Witold.

Flow of the blood in the internal carotid artery during postural changes of the body. Acta physiol. Pol. 16 no.2:165-167 Mr-Ap'65.

1. Zaklad Fizjologii Akademii Medycznej we Wroclawiu (Kierownik: prof. dr. A. Klisiecki).

BULA, F.; NOVACKY, A.

Collective efficiency standards in the brick industry.

P. 227. (STAVBA.) (Bratislava, Czechoslovakia) Vol. 4, No. 8, Aug. 1957

SO: Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 5, 1958

NOVACKY, Alexander; BULA, Frantisek

Experience in combining the output standards in brick production. Prace mzda 12 no.10:447-451 O '64.

1. Institute of Standardization in the Building Industry, Worksite Bratislava.

BULABAYEV, T.

Experimental determination of error parameters in nomographic calculations. Vest. AN Kazakh.SSR 14 no.9:111-118 S '58. (Nomography (Mathematics)) (MIRA 11:11)

BULABEYEV, T.

An Estimate of the Errors Occuring When Calculating on the Basis of a Levelled-point Nonogram p. 6

[redacted]

16(1) SOV/31-59-3-9/14

AUTHOR: Bulabayev, T.

TITLE: The Evaluation of the Error in Calculation on a Nomogram With a Binary Field and an Answering Scale (Otsenka pogreshnosti vychisleniya po nomogramme s binarnym polem s otvetom na shkale)

PERIODICAL: Vestnik Akademii nauk Kazakhskoy SSR, 1959, Nr 3, pp 68-73 (USSR)

ABSTRACT: The nomogram is based on the equation $F(u,v,t,w)=0$, in which u and v are the variables of the binary field and w the answering variable. The error in the determination of the answer is due to the error involved in the following operations: 1) interpolation in the families of the lines u=const and v=const at the search of a point in the field, corresponding to the given values u_o v_o; 2) interpolation at the search of a point on scale t, corresponding to the given value t_o; 3) the drawing of the isopleth passing through the established points; 4) the finding of the intersection point of the

Card 1/2

The Evaluation of the Error in Calculation on a Nomogram With a Binary Field and an Answering Scale

isopleth with the base of the answering scale; 5) interpolation at the determination of the values of the mark of the established point. On the basis of a complex analysis of the problem the author concludes that the absolute magnitude of the real calculation error never exceeds the theoretical value $|\Delta z|$ found in formula 6. There are 5 diagrams, 1 table and 2 Soviet references.

Card 2/2

BULABAYEV, T.

Errors in nomogram readings and their determination. Trudy Sekt. mat. i mekh. AN Kazakh. SSR 2:98-127 '63. (MIRA 16:10)

USSR / Cultivated Plants. Fruits, Berries. M-7

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 58766

Author : Bulabovich, A. D.
Inst : Not given
Title : Rationalization of the Pruning of Grape Shrubs

Orig Pub : Vinodeliye i vinogradarstvo USSR, 1957, No 5, 33-35

Abstract : A method of pruning, which leaves one uncut fruit bearing flower stalk, is proposed. The standardization of the load is carried out by breaking off during the period, when the racemes appear on sprouts. The most developed sprouts with good racemes are left, regardless of their disposition along the stalk. The yield of low productivity varieties increases considerably with this method of pruning. The experiments were carried out in the sovkhoz "Gurzuf" on the southern shore of the Crimea. -- E. A. Makarovskaya

Card 1/1

BULABTSEV, V.

Bee Culture-Saratov Province

"Increasing bee colonies by dividing." Pchelovodstvo, 29, No. 5. 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1953, Uncl.

SANDULESCU, D.; HANES, A.; BULACEANU, R.

Mass spectrometry. Rev chimie Min petr 13 no.12:735-744 D '62.

L 26912-66 IJP(c) WW/GG

ACC NR: AP6027015 SOURCE CODE: RU/0003/66/017/002/0081/0091

AUTHOR: Bulaceanu, R.; Trestianu, S.

ORG: none

TITLE: Nuclear magnetic resonance and its applications

SOURCE: Revista de chimie, v. 17, no. 2, 1966, 81-91

TOPIC TAGS: nuclear magnetic resonance, quantum mechanics, spectrometer, molecular structure

ABSTRACT: The authors briefly present the theoretical basis of nuclear magnetic resonance, from both the quantum mechanics and phenomenologic aspects; describe some types of nuclear magnetic resonance spectrometers; and discuss the use of nuclear magnetic resonance as a means of analyzing the molecular structure of various solids and liquids, as well as for general chemical analytic purposes. Orig. art. has: 22 figures, 23 formulas and 2 tables. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 14 / SUBM DATE: none / ORIG REF: 002 / SOV REF: 002
OTH REF: 021

LS
Card 1/1

UDC: 539.152.2:541.67

RUMANIA/Cultivated Plants - Fruits; Berries. M-6

Abs Jour : Ref Zhur - Biol., No 7, 1958, 30084

Author : Bulacev, Olga
Inst :
Title : Climatic Factors Determinative of Grape Vine Cultivation in Cluj.

Orig Pub : Gradina, via si livada, 1957, 6, No 7, 27-31 (Rum)

Abstract : No abstract.

Card 1/1

BULACH, Kh. O. Prof. Makhach-Kala

"A Case of Primary Syphiloma of the Eyelid Diagnosed by the Pathological Histological Picture," Vest. oftalmol., 27, No.1, 1948

BULACH, Kh. O.

"Pathologico-Anatomical Changes in the Eyelids in Trachoma Cases," Vest. oftalmol., 28, No.6, 1949

BULACH, Kh.O.

Certain considerations on transplantation of the duct of Steno into the conjunctival sac. Vest. oft., Moskva 32 no.2:38-40 Mar-Apr 1953. (CIML 24:4)

1. Professor. 2. Markhachkala.

BULACH, Kh. O.

3675. BULACH, Kh. O. Glaznaya Colezn' trakhoma. Makhachkala, Dagknigoizdat. 1954. 8s. 20sm (M-vo zdravookhraneniya DASSR. Resp. dom. san. prosveshcheniya). 500ekz B. ts. Na avar. yaz. (54-54127) 617.711-002.291

SO: Knizhnaya Letopis', Vol. 3, 1955

BULACH, Kh.O., professor (Makhach-Kala)

Tenotomy by A.B.Chubukov's method in concomitant strabismus. Vest.oft. 69 no.5:13-15 S-O '56. (MLRA 9:12)
(STRABISMUS, surg.
tenotomy in concomitant strabismus, Chubukov's method)

BULACH, M.Kh.

Jointing of Cretaceous sediments of the Chechen-Ingush A.S.S.R. in connection with the study of their reservoir properties. Trudy VNIGRI no.165:89-128 '61. (MIRA 14:8)
(Chechen-Ingush A.S.S.R.--Oil sands--Permeability)
(Joints (Geology))

BULACH, M.Kh.; KAPLAN, M.Ye.

Study of fracturing in Upper Cretaceous rocks of the northeastern Caucasus. Trudy VNIGRI no.193:30-55 '62. (MIRA 15:12)
(Caucasus, Northern--Oil sands)

KAPLAN, M.Ye.; BULACH, M.Kh.

Connection between stylolitic structures an fracturing in rocks. Trudy VNIGRI no.193:178-186 '62. (MIRA 15:12)
(Stylolites) (Joints (Geology))

SMEKHOV, Ye. M., prof.; BULACH, M.Kh., kand. geol.-mineral. nauk; ROMM, Ye.S.; GORYUNOV, I.I.; GMID, L.P.; GROMOV, V.K.; DOROFEYEVA, T.V.; KNORING, L.D.; KALACHEVA, V.N.; TATARINOV, I.V.; KLEYNOSOV, Yu.F.; KAPLAN, M.Ye.; ZVONITSKAYA, I.V.; MAZURKEVICH, Z.I.; DRRYABINA, N.N.; RUSAKOVA, L.Ya., vedushchiy red.; BARANOVA, L.G., tekhn. red.

[Methodological text on the study of the fracturing of rocks and fractured oil and gas reservoirs]. Metodicheskoe posobie po izucheniiu treshchinovatosti gornykh porod i treshchinnykh kollektorov nefti i gaza. Leningrad, Gostoptekhizdat, 1962. 76 p. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no.201). (MIRA 16:4)

(Joints(Geology)) (Oil sands)

SMEKHOV, Ye.M., prof., doktor geol.-mineral. nauk; BULACH, M.Kh.; ROMM, Ye.S.; POZINENKO, B.V.; GORYUNOV, I.I.; KNORING, L.D.; GMID, L.P.; GROMOV, V.K.; KUZNETSOV, Yu.I.; DOROFEYEVA, T.V.; KALACHEVA, V.N.; KLEYNOSOV, Yu.F.; TATARINOV, I.V.; IONINA, I.N., vedushchiy red.; YASHCHURZHINSKAYA, A.B., tekhn. red.

[Combined investigations of fractured reservoirs and experience in estimating the petroleum reserves contained therein.] Kompleksnye issledovaniia treschinnykh kollektorov i opyt podscheta v nikh zapasov nefti. Leningrad, Gostoptekhizdat, 1963. 198 p. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledovatel'skii geologorazvedochnyi institut. Trudy, no.214) (MIRA 17:1)

BULACHEV, F.P.

BULACHEV, F. P., VLASOV, P. P. SASS, A. Ya.

Peat Industry

Spreader SMD, Torf. prom. 29 No. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, _____1953. Unclassified.

LIMAR', T.F.; UVAROVA, K.A.; BULACHEVA, A.F.; SGYVUBM, A.S.; BEDNOVA, I.N.; MAKOVSKAYA, E.B.; SOLOMEINA, G.I.; DOLMATOV, Yu.D.; BOBYRENKO, Yu. Ya.; KOGAN, F.I.; KOVALENKO, P.N.; IVANOVA, Z.I.; POKIN, A.V.; KOMAROV, V.A.; SOROCHKIN, I.N.; DAVYDOVA, S.M.; RAVDEL', A.A.; GORELIK, G.N.; DAUKSHAS, V.K. [Dauksas, V.]; PIKUNAYTE, L.A. [Pikunaite, L.]; SHARIPOV, A.Kh.; SHABALIN, I.I.; STEPNOVA, G.M.; SHMIDT, Ye.V.; DUBOV, S.S.; STRUKOV, O.G.

Scientific research papers of the members of the All-Union Mendeleev Chemical Society (brief information). Zhur. VHKO 10 no.3:350-360 '65. (MIRA 18:8)

1. Donetskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv (for Limar', Uvarova, Bulacheva). 2. Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut (for Shubin, Bednova, Makovskaya, Solomeina). 3. Chelyabinskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta mineral'nykh pigmentov (Dolmatov, Bobyrenko). 4. Rostovskiy-na-Donu universitet (for Kogan, Kovalenko, Ivanova). 5. Leningradskiy tekhnologicheskiy institut imeni Lensoveta i Institut mineral'nykh pigmentov (for Ravdel', Gorelik). 6. Vil'nyusskiy gosudarstvennyy universitet imeni Kpsukasa (for Dauksnas, Pikunayte). Nauchno-issledovatel'skiy institut neftekhimicheskikh proizvodstv (for Sharipov, Shabalin). 8. Tomskiy politekhnicheskiy institut imeni Kirova (for Stepnova, Shmidt).

BERLIN, A.A.; BULACHEVA, S.F.; MOROZOV, Yu.L.

Chemistry and technology of synthetic polymers. Modification of properties of polyethylene by the surface oxidation method. Plast.massy no.10:3-5 '62. (MIRA 15:11)
(Polyethylene) (Oxidation)

BULAJIC, Zora, dr.

Hygienic properties of potable water according to a complete bacteriological analysis. Glas. hig. inst. 9 no.3/4:59-62 Jl-D '60.

(WATER SUPPLY microbiol)

YUGOSLAVIA

BULAJIC-ZARKOVIC, Dr Zora /Affiliation not given/.

"The Hygienic and Epidemiological Significance of Bacteriological Findings in Drinking Water Processed According to Standard Methods."

Belgrade, Glasnik Zavoda za Zdravstvenu Zastitu NR Srbije, Vol 11, Nos 3-4, 1962, pp 5-12.

Abstract: /Author's Serbocroatian summary modified/ Data on 250 samples of well water and 100 samples of tap water show that no assessment can be made of the hygienic value of such water on the basis of changes in lactose and gas formation after 48 hours of incubation at 37 degrees centigrade. A determination of the hygienic value of a sample of water must be the result of complete analysis based on a specific bacteriogram and in the sense of the 1958 recommendations of the World Health Organization.

Seven tables, six references (mainly Western).

1/1

BULAK, J.

"Economic and technical-organizational influence of prefabricated lining on the intake channel." p. 138.

STAVBA. (Poverenictvo stavebnictva). Bratislava, Czechoslovakia, Vol. 6, No. 5, May 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8, August 1959.
Uncla.

BOROVICKA, L., inz.; BULAK, J.; HOBST, L., inz. dr.; MEDEISKY, V., inz.; PYSNY, T., inz.; SEDLACEK, J., inz.; SCHWARZ, V., inz.

Concept of the technical development of engineering constructions. Inz stavby 12 no.12: Suppl: Mechanizace no.12: 521-547 '64.

TOROPOV, Nikita Aleksandrovich, 1908- BULAK, L.N.; CHETVERIKOV, S.D., redaktor.

[Course in mineralogy and petrography and the principles of geology] Kurs mineralogii i petrografii s osnovami geologii. Pod red. S.D.Chetverikova. Moskva, Gos. izd-vo lit-ry po stroit. materialam, 1953. 486 p. (MLRA 7:1)

(Mineralogy) (Petrology) (Geology, Stratigraphic)

TOROPOV, Nikita Aleksandrovich; BULAK, Lidiya Nikolayevna; SHAGIROVA, I.M., red.

[Course in mineralogy, crystallography, and petrography with principles of geology] Kurs mineralogii, kristallografii i petrografii s osnovami geologii. Izd.2. Moskva, Vysshaia shkola, 1964. 443 p. (MIRA 17:11)

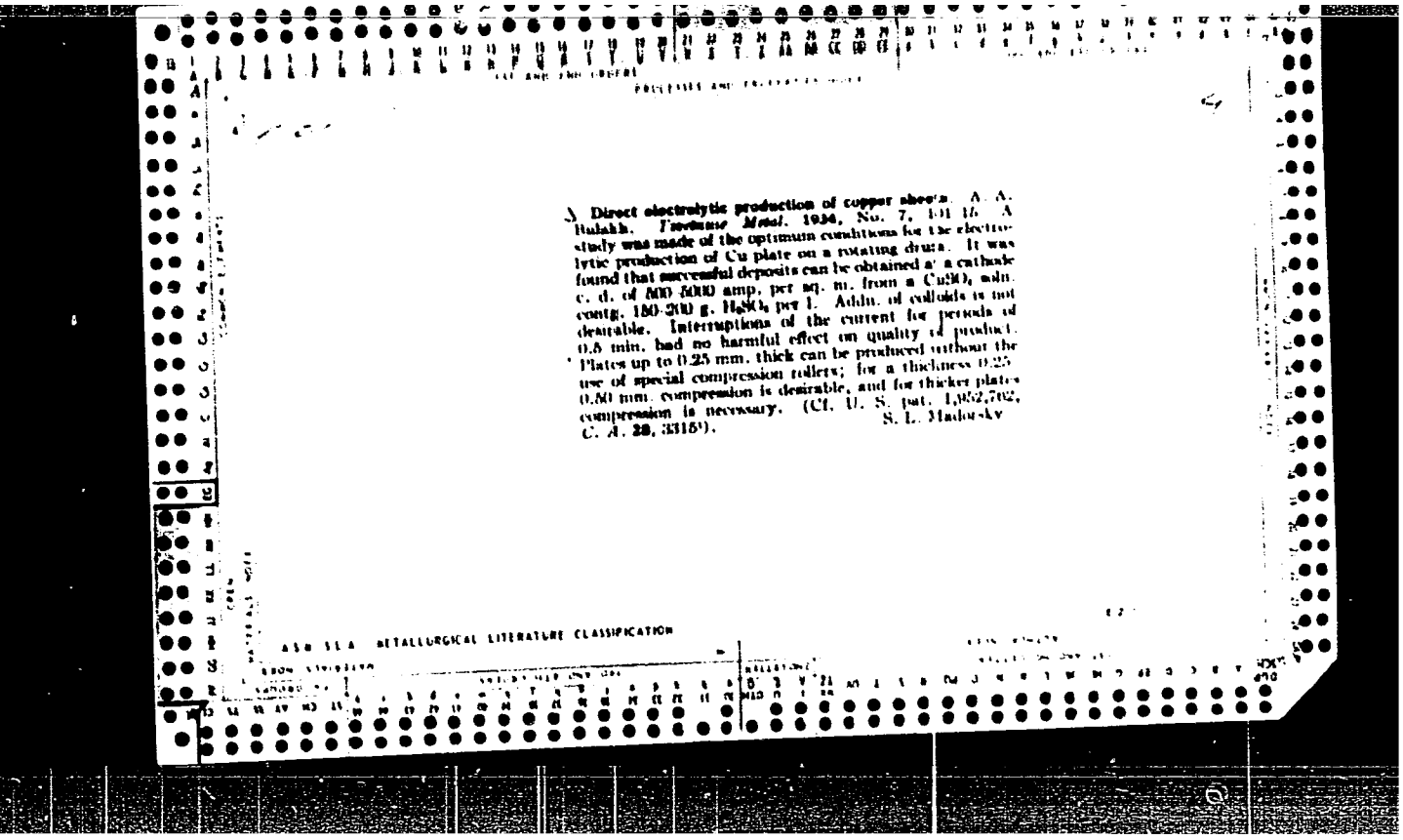
BULAKAYEVA, A.Kh.

Use of electrophoresis of various medicaments in the compound treatment of pulmonary tuberculosis. Kaz.med.zhur. no.4:10-11 Jl-Ag '62. (MIRA 15:8)

1. Kazanskiy gospital' dlya invalidov Otechestvennoy voyny (nachal'nik - N.S.Valeyev) i kafedra ftiziatrii (zav. - dotsent P.L.Vinnikov) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni Lenina.
(TUBERCULOSIS) (ELECTROPHORESIS)

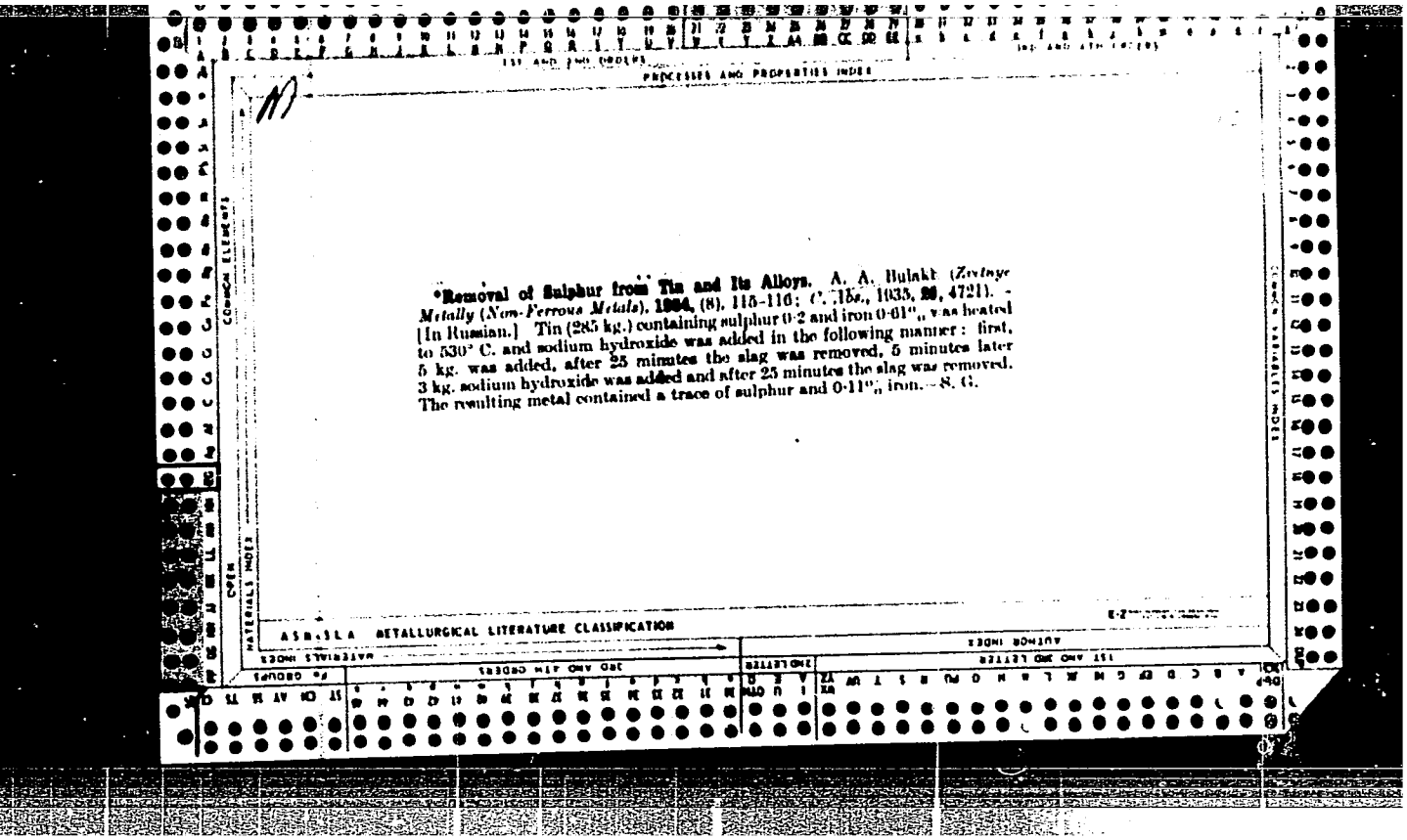
Water cooling of cupellation furnaces. A. A. Bulakh. *Tsvetnuie Metal.* 1930, 903 6. E. J. C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

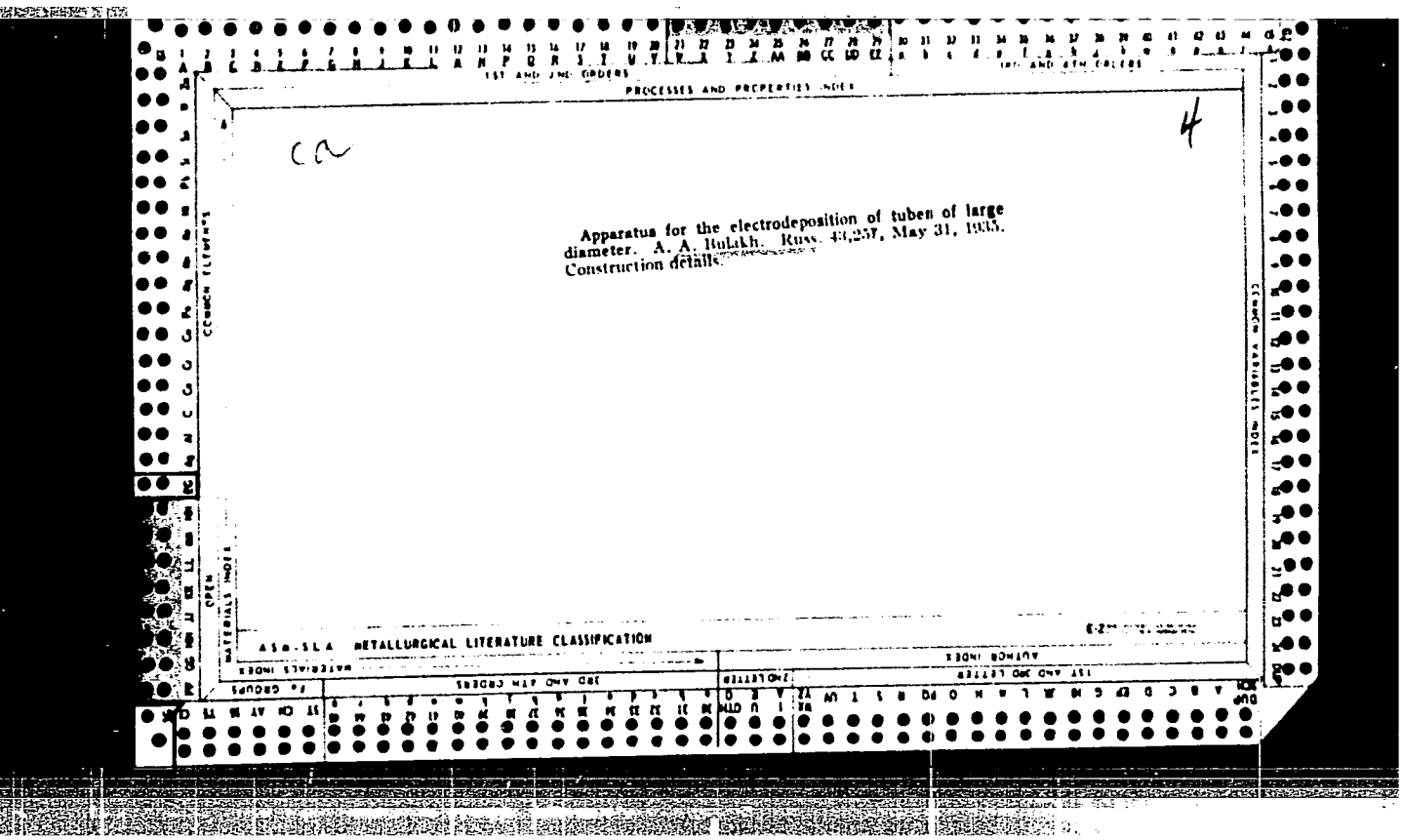


Direct electrolytic production of copper sheets. A. A. Balakh. *Tsvetnye Metal.* 1934, No. 7, 101-16. A study was made of the optimum conditions for the electrolytic production of Cu plate on a rotating drum. It was found that successful deposits can be obtained at a cathode c. d. of 500-5000 amp. per sq. m. from a $CuSO_4$ soln. contg. 180-200 g. H_2SO_4 per l. Addn. of colloids is not desirable. Interruptions of the current for periods of 0.5 min. had no harmful effect on quality of product. Plates up to 0.25 mm. thick can be produced without the use of special compression rollers; for a thickness 0.25-0.50 mm. compression is desirable, and for thicker plates compression is necessary. (Cf. U. S. pat. 1,952,702, C. A. 28, 3315⁹). S. L. Madorsky

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

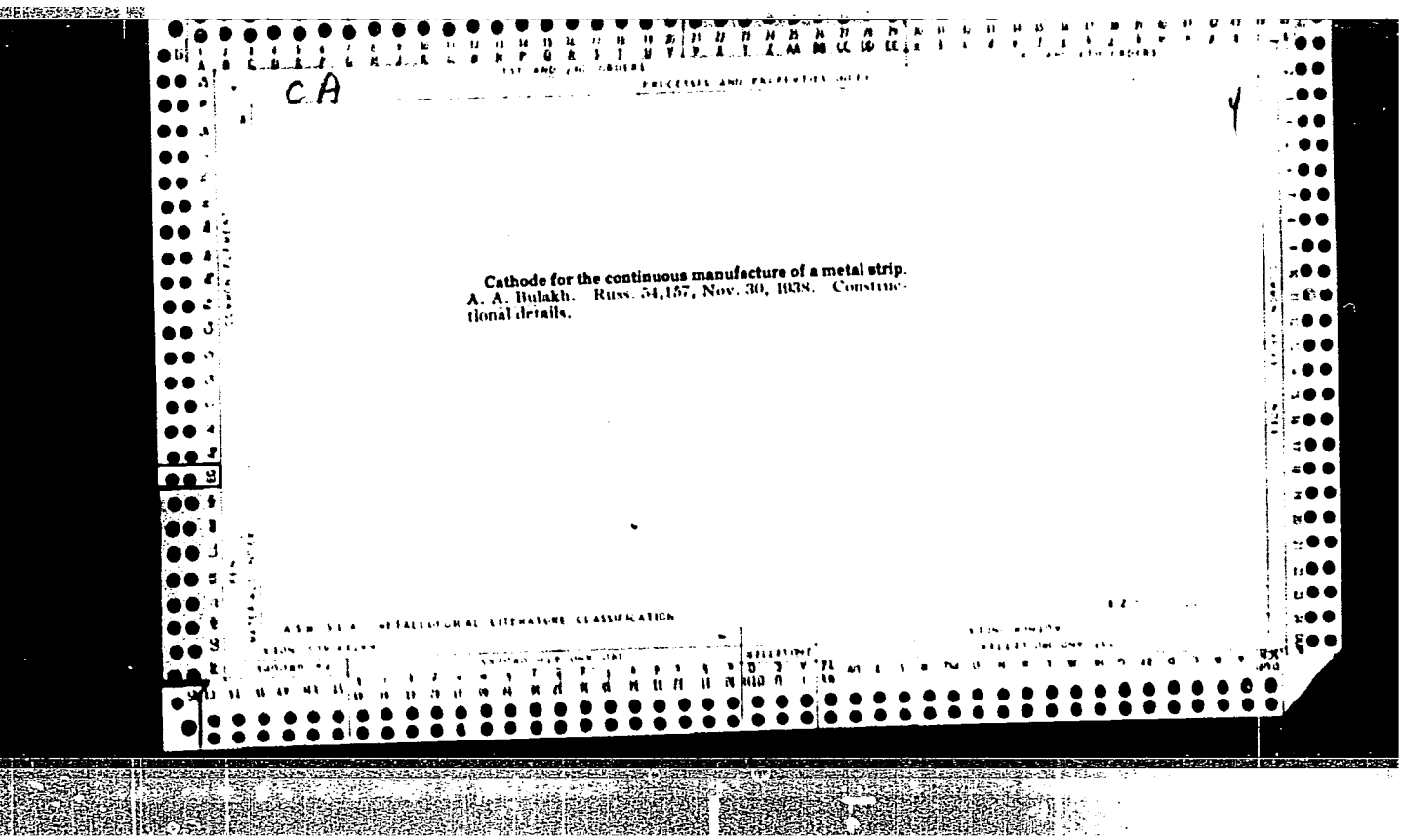


Removal of Sulphur from Tin and Its Alloys. A. A. Bulakh (*Zavlaye Metally* (*Non-Ferrous Metals*), **1934**, (8), 115–116; *C. Abs.*, 1935, **29**, 4721). [In Russian.] Tin (285 kg.) containing sulphur 0·2 and iron 0·01% was heated to 530° C. and sodium hydroxide was added in the following manner: first, 5 kg. was added, after 25 minutes the slag was removed, 5 minutes later 3 kg. sodium hydroxide was added and after 25 minutes the slag was removed. The resulting metal contained a trace of sulphur and 0·11% iron.—S. G.



The effect of iron in the electrolyte on the copper deposits from sulfuric acid solutions with soluble anodes. A. A. Bulakh and G. K. Ignatov. *Tsvetnye Metal.* 1937, No. 1, 63-8. Fe in the soln. causes the Cu deposit to be [illegible]. This effect is most marked at low c. ds. [illegible] H. M. [illegible]

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



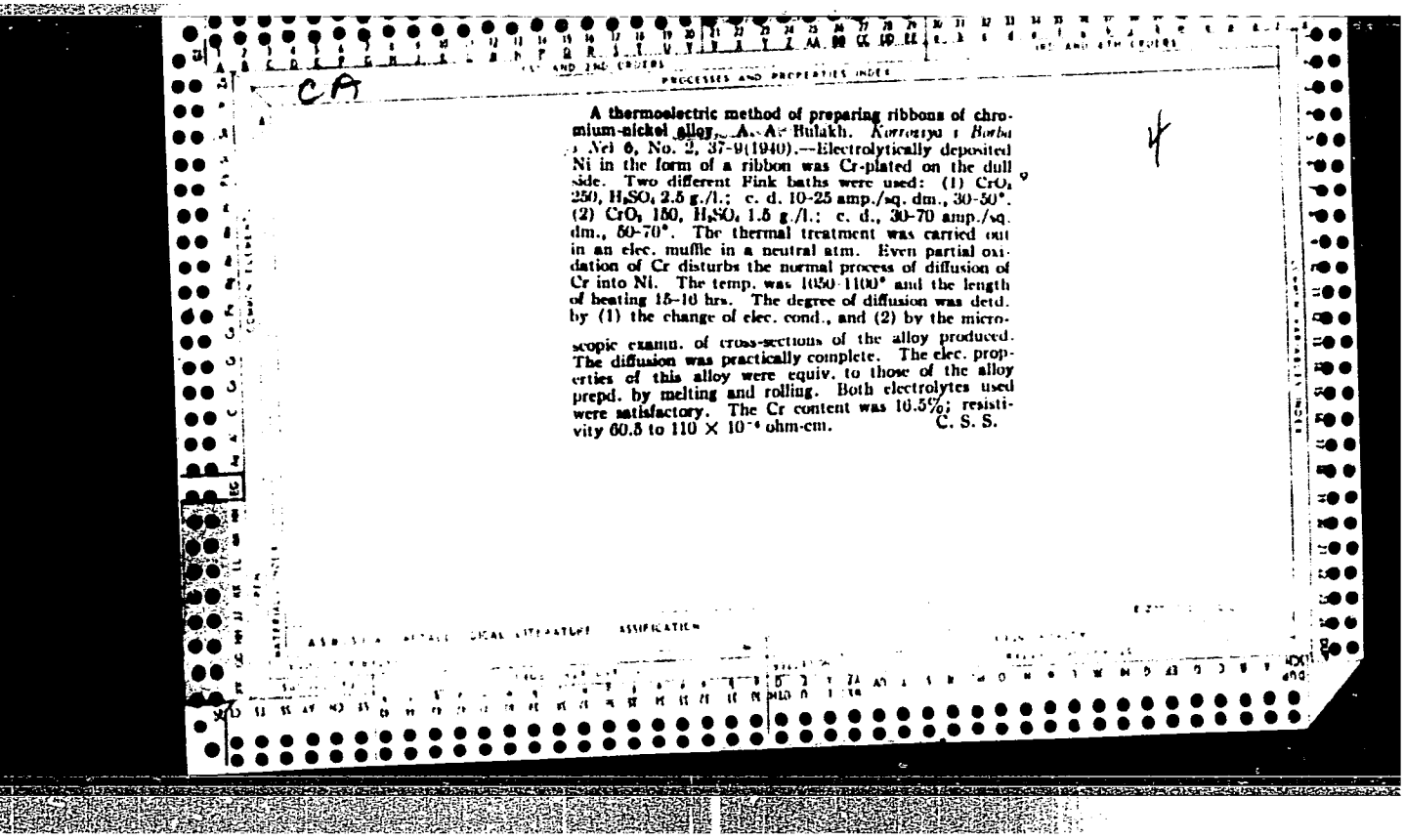
CA

4

Cathode for the continuous manufacture of a metal strip. A. A. Bulakh. Russ. 54,157, Nov. 30, 1938. Constructional details.

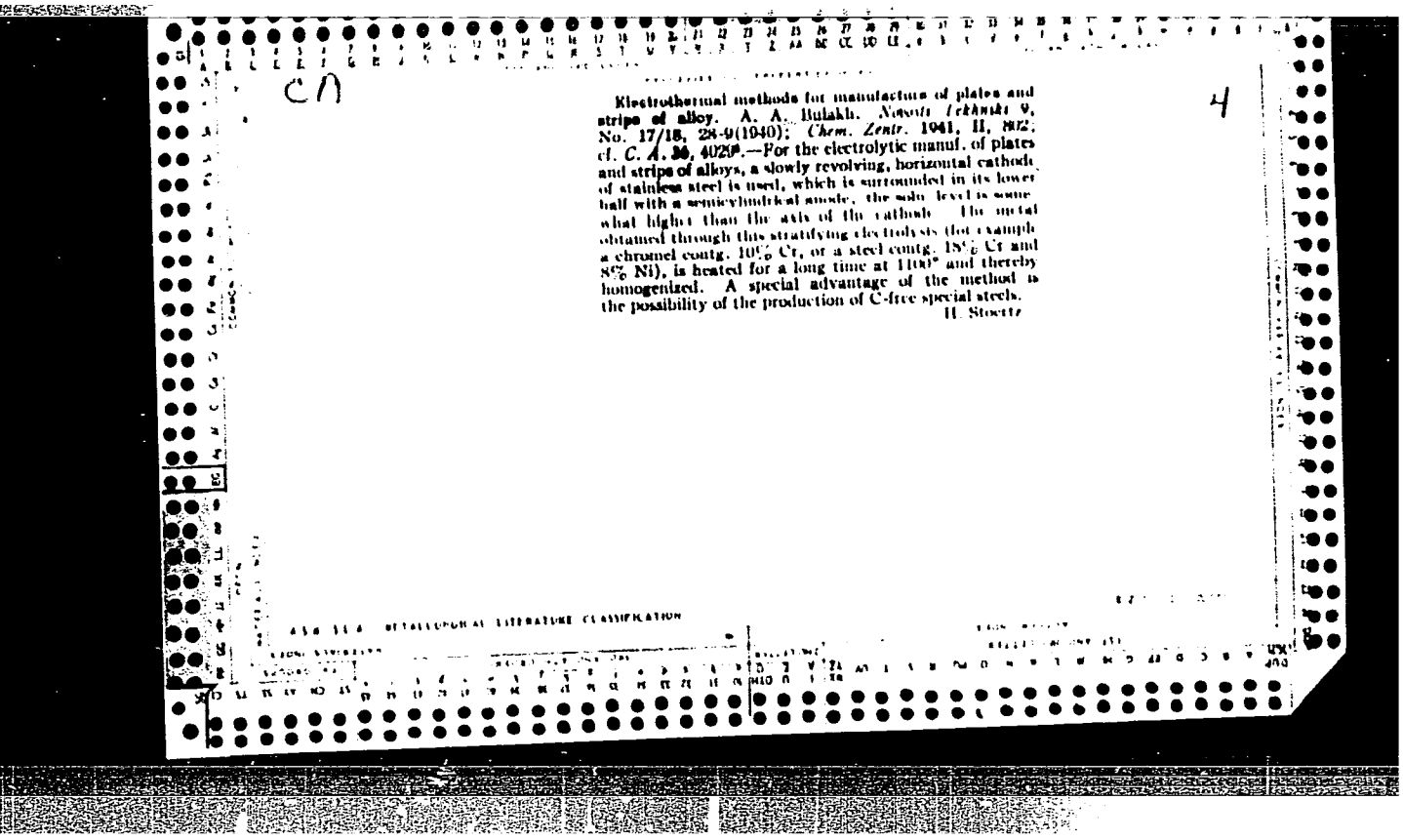
The presence of metallic magnesium in nickel deposited by electrolysis. A. A. Bulakh. *Korroziya i Bor'ba s Nei* 4, No 2, 104-6(1938); *Khim. Referat. Zhur.* 1, No 11-12, 104. The object of the expt. was to verify the observation of Koch (*Z. Elektrochem.* 8, ...) and of ... mann (C. A. 6, 125.) according to which an addn. of MgSO4 to the Ni bath causes the formation of a deposit of Ni which contains some Mg. These claims were not verified. If the presence of metallic Mg in the Ni deposit is possible, some special exptl. conditions are necessary which were not described in the mentioned articles.

W. R. Henn



CA

A thermoelectric method of preparing ribbons of chromium-nickel alloy. A. A. Bulakh. *Korroziya i Borba s Neï* 6, No. 2, 37-9(1940).—Electrolytically deposited Ni in the form of a ribbon was Cr-plated on the dull side. Two different Fink baths were used: (1) CrO_3 250, H_2SO_4 2.5 g./l.; c. d. 10-25 amp./sq. dm., 30-50°. (2) CrO_3 150, H_2SO_4 1.5 g./l.; c. d., 30-70 amp./sq. dm., 50-70°. The thermal treatment was carried out in an elec. muffle in a neutral atm. Even partial oxidation of Cr disturbs the normal process of diffusion of Cr into Ni. The temp. was 1050-1100° and the length of heating 15-16 hrs. The degree of diffusion was detd. by (1) the change of elec. cond., and (2) by the microscopic examn. of cross-sections of the alloy produced. The diffusion was practically complete. The elec. properties of this alloy were equiv. to those of the alloy prepd. by melting and rolling. Both electrolytes used were satisfactory. The Cr content was 16.5%; resistivity 60.8 to 110 × 10^{-6} ohm-cm. C. S. S.



CA

4

Electrothermal methods for manufacture of plates and strips of alloy. A. A. Bulakh. *Novosti Tekhniki* 9, No. 17/18, 28-9(1940); *Chem. Zentr.* 1941, II, 802; cf. *C. A.* **36**, 4029⁸.—For the electrolytic manuf. of plates and strips of alloys, a slowly revolving, horizontal cathode of stainless steel is used, which is surrounded in its lower half with a semicylindrical anode, the soln. level is somewhat higher than the axis of the cathode. The metal obtained through this stratifying electrolysis (for example a chromel contg. 10% Cr, or a steel contg. 18% Cr and 8% Ni), is heated for a long time at 1100° and thereby homogenized. A special advantage of the method is the possibility of the production of C-free special steels.

H. Stoertz

BULAKH, A. A.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Metallurgy and Metallography

3

incl

Mechanism of anodic solution of copper-nickel alloys. A. A. Bulakh and O. A. Khan. *Izvest. Akad. Nauk Kazakh. S.S.R.* No. 123, *Ser. Khim.* No. 7, 96–104(1953).—Anodic soln. of Cu-Ni alloys that had been heat-treated and have a more equilibrated structure proceeds with higher anodic yields and with lower yield of mud than occurs with alloys that are cast and not equilibrated. In cast alloys Cu goes into soln., primarily in the form of that solid soln. which is least rich in Cu; in cast alloys there is greater opportunity for waste formation owing to falling out of passivated grains of the alloy which suffered thermal deformation on cooling.
G. M. Kosolapoff

BULAKH, A. A.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Metallurgy and Metallography

4

(2) Mct

Corrosion resistance of tungsten-nickel coatings. A. A. Bulakh and V. A. Korchmarek. *Izvest. Akad. Nauk Kazakh. S.S.R. No. 123, Ser. Khim.* No. 7, 105–10(1953).—Mono- and polylayer coatings of W-Ni on Fe were examd. as to corrosion resistance in HCl and H_2SO_4 solns. as well as in NaOH. The coatings were electrodeposited from baths of 10 g. WO_3, 10 g. $NiSO_4.7H_2O$, 150 g. $(NH_4)_2SO_4$, 250 ml. 25% NH_4OH, and 750 ml. H_2O. The unsatisfactory protective action of these coatings lies in the porous nature and cracks in the layers, as well as in insufficient chem. resistance of the coatings themselves. The coatings are slightly improved by heat-treatment. Deposition of W-Ni in alternate layers with Ni gave unsatisfactory results.

G. M. Kosolapoff

USSR

Micrographs of the Cementation of Copper with Nickel Powder. A. A. Bulakh and R. K. Drachevskaya (Zhur. Prikład. Khim., 1953, 26, (11), 1225–1226 (in Russian); *J. Appl. Chem. U.S.S.R.*, 1953, 26, (11), 1171–1173 (in English)).

Microscopical observation of Ni powder, immersed in a Ni electrolyte contg. $CuSO_4$ and heated to at least 50° C., showed that initially Cu crystals appeared at definite regions of the Ni grain, subsequent deposition taking place only on those first crystals, so that the Ni grain was never completely coated with Cu. The uncoated areas of the Ni surface thus acted as anodes and the Cu "trees" as cathodes, so that suggestions in the literature that the Cu surface is inert and should be removed are incorrect; "cleaning" of the powder to remove Cu will reduce the e.m.f. of the microcells and retard cementation, whilst the detached Cu crystals will also redissolve in the electrolyte.—G. V. E. T.

*The Structure of Nickel–Copper Anodes and the Process of Slime Formation. A. A. Bulakh and O. A. Khun (*Zhur. Prikład. Khim.*, 1953, 26(1), 111–112).—[In Russian]. Ni–Cu anodes contg. 10, 20, and 40% Cu were cast from electrolytic Cu and Ni melted in a fireclay crucible in an H.F. induction furnace; some anodes of each alloy were annealed in N for 2 hr. at 1100° C. The cast anodes had an irregular dendritic structure, which changed to polygonal grain boundaries on annealing. One anode (surface area 4–5 cm.²) was used with two Al cathodes in a 40-ml. rect. angular tank contg. (g./l.) $NiSO_4.7H_2O$ 200, Na_2SO_4 40, H_3BO_3 20, and NaCl 3. The time of electrolysis was 8–10 hr., the anodic c.d. 250 amp./m.², and the temp. 60° ± 1° C. In each case, more slime was produced from as-cast than from annealed anodes; the amount of Cu dissolving was less in the case of the as-cast anodes.—G. V. E. T.

Institut Khimicheskikh nauk Akademii nauk Kazakhsko y SSR.

BULAKH, A. A.

(3)

Potentials of copper and nickel sulfides. A. S. Bulakh and O. A. Khan (Inst. Chem. Sci., Acad. Sci. Kazakh. S.S.R.).

Zhur. Priklad. Khim. 27, 166–70(1954); cf. Ustinskii and Chizhikov, *C.A.* 44, 3816*i*.—The potentials η of Cu_2S and Ni_3S_2 were detd. under conditions which occurred in practice, at 60° and in a soln. consisting of $NiSO_4.7H_2O$ 200, Na_2SO_4 40, H_3BO_3 20, and NaCl 3 parts. The static η (in the absence of current) of Cu_2S was more electropos. than that of Ni_3S_2. The latter attained its equil. value of 0.07 v. within 10 min.; the former at 0.4 v. in 4 hrs. The dynamic anodic η vs. time of Ni_3S_2 at c.ds. of 200 and 400 amp./sq. in. were almost identical curves reaching equil. at 2.26 and 2.30 v. in 4 hrs. For Cu_2S the 2 curves differed: with 200 amp./sq. m. the curve became horizontal at 1.20 v. within 30 min.; with 400 amp./sq. m. the curve rose almost vertically at 1.2 v. within 30 min. Similar curves were obtained with Cu_2S in 1*N* $CuSO_4$. This was explained on the assumption that at the lower c.d. the reaction proceeded to form CuS and Cu^{++}, whereas at the higher c.d. S and Cu^{++} were formed. This was supported by the appearance of the anode, bluish at 200 and yellow at 400 amp./sq. m.

I. Beneowitz

NAF 11-10-54

BULAKH, A.A.

ZEBREVA, A.I.

5(2) PHASE I BOOK EXPLOITATION SOV/1699

Akademiya nauk Kazakhskoy SSR. Institut khimicheskikh nauk

Issledovaniya po elektrokhimii vodnykh rastvorov i rasplavov i amal'gamnoy metallurgii (Research on the Electrochemistry of Water Solutions, Fusions and Amalgam Metallurgy) Alma-Ata, Izd-vo AN Kaz. SSR, 1959. 122 p. (Series: Its: Trudy, t. 5) 1,500 copies printed.

Ed.: V.V. Aleksandriyskiy; Tech. ed.: L.P. Novskina; Editorial Board of Series: I.I. Zabotin, V.N. Ilyushchenko, G.Z. Kir'yakov (Deputy Resp. Ed.), M.T. Kozlovskiy, (Resp. Ed.) and L.N. Shaldyakov.

PURPOSE: This book is intended for scientists and engineers in the electrochemical and nonferrous metal industries.

COVERAGE: This collection contains 14 reports by the Laboratories for Analytical Chemistry and Electrochemistry attached to the Institute of Chemical Sciences, Academy of Sciences, Kazakhstan Republic. The amalgam method of obtaining thallium from lead powder, the electrolysis of sulfate solutions of zinc and the impoverishment of waste slag during nickel production are described. The majority of articles have a practical nature and deal with problems of developing and perfecting new electrochemical methods for the production of non-ferrous metals.

Card 1/4

Kir'yakov, G.Z., F.K. Bayaliyeteova, and R.S. Vakhidov. Role of Manganese in the Zinc Electrodeposition Process 72

Vakhidov, R.S., and G.Z. Kir'yakov. Electrodeposition of Cadmium Under Conditions of High Current Densities 82

Ramayev, Yu. B., and G.Z. Kir'yakov. Lead-based Current Anodes 87

Bulakh, A.A., L.N. Shaldyakov, Yu. B. Ramayev, and G.Z. Kir'yakov. Impoverishment of Fused Waste Slag From the Production of Nickel by the Displacement Method. Part I. 102

Shaldyakov, L.N., and G.Z. Kir'yakov. Impoverishment of Fused Waste Slag From the Production of Nickel by the Displacement Method. Part II. 111

Shaldyakov, L.N., and G.Z. Kir'yakov. Impoverishment of Fused Waste Slag From the Production of Nickel by the Displacement Method. Part III. 118

AVAILABLE: Library of Congress

ZH/mas

BULAKH, A.G.; ABAKUMOVA, N.B.

Sebl' -Yavr massif of ultrabasic and alkalic rocks and carbonatites (Kola Peninsula). Sov.geol. 3 no.5:47-60 My '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut.
(Kola Peninsula--Rocks, Igneous)

BULAKH, A.G.; IL'INSKIY, G.A.; KUKHARENKO, A.A.

Zirkelite from deposits of the Kola Peninsula. Zap. Vses. min. ob-va 89 no.3:261-273 '60. (MIRA 13:8)
(Kola Peninsula--Zirkelite)

BULAKH, A.G.

Explosive breccia of the Turiy Peninsula and the age of sandstones of the Terskaya series (Kola Peninsula). Inform. sbor. VSEGEI no.43:11-26 '61. (MIRA 14:12)
(Turiy Peninsula—Breccia)
(Turiy Peninsula—Sandstone)

BULAKH, A.G.

Explosive breccia of the Turiy Peninsula and the age of the Terskiy series of sandstones (Kola Peninsula). Izv.vys.ucheb. zav.; geol.i razv. 5 no.3:44-53 Mr '61. (MIRA 15:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut (VSEGEI).
(Turiy Peninsula--Breccia) (Kola Peninsula--Sandstone)

KUKHARENKO, A.A.; BULAKH, A.G.; BAKLANOVA, K.A.

Sulfate-monazite from the carbonatites of the Kola Peninsula. Zap. Vses.min.ob-va 90 no.4:373-381 '61. (MIRA 14:9)
(Kola Peninsula--Monazite)

IVLIAKH, Andrey Gleboviche; FRANK-KAMENETSKIY, V.A.

[Geological excursion to the environments of Pitkyaranta]
Geologicheskaia ekskursiia v okrestnosti Pitkiaranty.
Petrozavodsk, Gos. izd-vo KASSR, 1961. 107 p.
(MIRA 18:4)

BULAKH, A.G.; SHEVALEYEVSKIY, I.D.

Mineralogy and crystallography of calzirtite from alkali rocks and carbonatites. Zap. Vses. min. ob-va 91 no.1:14-29 '62. (MIRA 15:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut, Leningrad i Institut geokhimii i analiticheskoy khimii AN SSSR, Moskva.

(Zirconates)

BULAKH, A.G.

[Handbook and tables for the calculation of mineral formulas] Rukovodstvo i tablitsy dlia rascheta formul mineralov. Moskva, Izd-vo "Nedra," 1964. 130 p.
(MIRA 17:6)

[illegible], A.G.

Zirkelite and zirkonolite from carbonatites in the Kola Peninsula. Zap. Vses. min. ob-va 92 no.6:746-748 '63. (MIRA 18:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut (VSEGEI), Leningrad.

1. LYAPUSTIN, A. K.; BULAKH, A. K.

2. USSR (600)

4. Dairy Cattle

7. Some results of research on increasing milk yield and on checking K. M. Letsko's suggested method for increasing butterfat content in milk, Sov. zootekh., 7, No. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February, 1953. Unclassified.

Bulakh, A. K.

BULAKH, A. K.

Cattle

Stall care of cattle on the "Terezino" Experimental Base. Korm. baza 4, No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

BULAKH, A.M.

Electrician of a leading sector. Avtom., telem. i sviaz' 8 no.?:
21-22 Ag '64. (MIRA 17:10)

1. Nachal'nik Ternopol'skoy distantsii signalizatsii i svyazi
L'vovskoy dorogi.

42769

24.4177
24.7600

S/185/62/007/010/012/020
D234/D308

AUTHORS: Bulakh, B. M. and Mizets'ka, I. B.

TITLE: Introduction of microadmixtures into CdS monocrystals during their growth, and some characteristics of alloyed specimens

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 10, 1962, 1125-1127

TEXT: Crystals were obtained, by the sublimation method, in presence of vapors of admixture substances. Character and intensity of the influence of admixtures is represented by the series S, Cu, Ag, Au, CdS, Cl_2, HCl, Ge. Crystal growth is stimulated by the substances on the right of CdS and suppressed by those on its left. Excess of S vapor is especially unfavorable. Spectral distribution shows a displacement of maximum photocurrent towards shorter wavelength in CdS + Au and CdS + Ge. Monocrystals with an admixture of Cu lose their photosensitivity almost completely after 2 - 3 months. The authors thank V. M. Korsun. There are 2 tables and 2 figures.

Card 1/2

Introduction of microadmixtures ... S/185/62/007/010/012/020
D234/D308

ASSOCIATION: Instytut napivprovidnykiv AN URSR, Kyyiv (Institute of Semiconductors, AS UkrSSR, Kiev)

SUBMITTED: March 26, 1962 (initially)
June 14, 1962 (after abridgment)

Card 2/2

BULAKH, B. M.

USSR/Mathematics - Supersonic flow FD-842

Card 1/1 : Pub. 85 - 7/14

Author : Bulakh, B. M. (Saratov)

Title : Theory of conical currents

Periodical : Prikl. mat. i mekh., 18, 451-452, Jul/Aug 1954

Abstract : Studies stationary vortexless isentropic conical currents of an ideal gas taking into account nonlinearity. The linear form of the problem was studied by M. Lighthill, "The shock strength in supersonic 'conical fields'," The Philosophical Magazine, Vol. 40, 7th series, No. 311, 1949.

Institution : --

Submitted : March 27, 1954

Bulah, B. M. On the theory of nonlinear conical flows. Prikl. Mat. Meh. 19 (1955), 393–409. (Russian)

The author considers irrotational conical flows under the assumption that any shocks that occur are so weak that vorticity and variations in entropy are negligible. A conical flow field adjacent to a region of supersonic flow must be a simple wave, in which one family of characteristic surfaces is composed of planes. There is an extensive discussion of the relation of the envelop of these planes to a parabolic surface of the governing partial differential equation. The results are applied to an attempt to determine the qualitative nature of a symmetrical conical flow at moderate angle of attack over a plane wing with swept forward supersonic leading and trailing edges. On the upper (lower) surfaces there appear the expected expansions (plane shocks) at the leading edges, followed by regions of uniform flow. Efforts to supplement these by the required simple wave patterns lead to contradictions which force the author to conclude that additional shocks occur in the disturbed flows on each side of the wing. Within these shocks he formulates boundary value problems of elliptic type which he has solved by relaxation methods in a particular case.

J. Giese (Aberdeen, Md.).

SOV/124-58-1-300

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 36 (USSR)

AUTHOR: Bulakh, B. M.

TITLE: On the Ranges of Convergence of Series Constituting the Solution of Certain Problems on Axially Symmetrical Gas Flows (Ob oblastyakh skhodimosti ryadov, predstavlyayushchikh resheniye nekotorykh zadach o techenii gazov s os'yu simmetrii)

PERIODICAL: Uch. zap. Saratovsk. un-t, 1956, Vol 52, pp 3-8

ABSTRACT: The author solves the Cauchy problem for a system of two quasi-linear first-order equations describing the irrotational isentropic flow of a gas with the initial data given for the axis of symmetry. Majorante functions are constructed for the plane and axially symmetrical problems. The range of convergence is determined for the series that make up the solution.

V. K. Solodkin

Card 1/1

AUTHOR BULYAKH, B.M.

TITLE On the Theory of Conical Flows (k teorii konicheskikh techeniy). PA - 2223

PERIODICAL Prikladnaia Matematika i Mekhanika, 1957, Vol 21, Nr 1, pp 143-144 (U.S.S.R.)

Received 3/1957 Reviewed 4/1957

ABSTRACT The present paper investigates the problem as to what conical supersonic flows are able to join a homogeneous gas flow without jump along a MACH cone. In a previous work (Prikl.Mat.i Mekh., Vol 18, Nr 4, 1954) the author assumed that this is possible only in the case of axially-symmetric flows. However, a further study of the problem showed that the conical potential F has a logarithmic singularity on MACH's cone and depends on an arbitrary function θ.

If φ denotes the velocity potential and if the z-axis is parallel to the velocity of the homogeneous flow, it applies that $\varphi = zF(\xi,\eta)$, $\xi = x/z$, $\eta = y/z$, $z = \sqrt{\xi^2+\eta^2}$, $tg\,\theta = \eta/\xi$. These results are the generalization of the results obtained by A.BUSEMANN concerning axially-symmetric flows for the case of any conical flows. The expressions for the components of the velocity of the conical flow in the direction of the Cartesian axes x,y,z are given as follows: $u = \cos\theta F_r - (\sin\theta/r)F_\theta$, $v = \sin\theta F_r + (\cos\theta/r)F_\theta$, $\omega = F - rF_r$.

Next, a voluminous equation for F is written down. On MACH's cone the following applies: $r = r_0 = (M_0^2 - 1)^{-1/2}$, $M_0 = \omega_\infty/\alpha_0$ $F_r = F_\theta = 0$

F is assumed to have steady third derivations to r and θ on MACH's cone and its neighborhood. From the above differential equation there result the following relations: $(F_{rr})_{r=r_0} \equiv 0$ or $(F_{rr})_{r=r_0} = (\omega_\infty/(\varkappa+1))(M_0^2 - 1)^2/M_0^4$. The former value corresponds to a homogeneous flow and

Card 1/2

On the Theory of Conical Flows.

and the second $(F_{rr})_{r=r_0}$ corresponds to the elliptical type of the above differential equation in the vicinity of $r=r_0$. Therefore F is analytical with respect to r and O. The study of the different varieties, as P tends towards zero, showed the following: The equation which results from the repeated differentiation of the aforementioned differential equation and from the limit $r \to r_0$ can be satisfied only in the case of $\lim_{rrrr}(r - r_0)_3 = \text{const.}$ at $r \to r_0$. Herefrom follows $F = \omega_o + \beta(r_0 - r)^2 + \gamma(r_0 - r)^3 \ln(r_0 - r) + R$, with $\beta = (\omega_o/2(\varkappa+1)(M_0^2 - 1)^2/M_0^4$; $\gamma = (\omega_o/6(\varkappa+1)^2)((M_0^2-1)^{5/2}/M_0^6)[3(M_0^2-1) - (\varkappa + 1)(2 - M_0^2)]$.
R here denotes the terms of higher order with respect to $r - r_0$.
(Without illustrations)

ASSOCIATION Not given
PRESENTED BY
SUBMITTED 9. 11. 1956
AVAILABLE Library of Congress

Card 2/2

AUTHOR: Bulakh, B.M. (Saratov) SOV/40-22-3-17/21

TITLE: ~~Remarks~~ on the Paper of Fowell "Exact and Approximate Solutions for the Supersonic Delta Wing" (Zamechaniye k stat'ye L. R. Fauella "Tochnoye i priblizhennoye resheniya dlya sverkhzvukovogo del taobraznogo kryla")

PERIODICAL: Prikladnaya matematika i mekhanika, 1958, Vol 22, Nr 3, pp 404 - 407 (USSR)

ABSTRACT: Fowell [Ref 1] treated the problem of the flow around a plane delta wing for the case of a frictionless gas. The angle of incidence is not assumed to be small, but the skidding of the delta wing is neglected. Since a supersonic flow is considered the two conic flows which originate during the flow above and below the wing do not interfer. Therefore it is possible to consider both flows separately. In the present short notice the author proves that there occurred an error in the paper of Fowell in the consideration of the flow on the upper side of the wing. He corrects this error and simultaneously gives some boundary value problems for the flow around a delta wing in the supersonic region. A comparison of the experimental data given by Fowell with

Card 1/2

the calculations shows that larger deviations occur in the theory of Fowell. The calculation values of the present paper coincide in a better way with the data.
In the paper the results are discussed only by means of some diagrams without greater theoretical derivatives.
There are 4 figures, and 6 references, 3 of which are Soviet, and 3 English.

SUBMITTED: November 14, 1957

BULAKH, B.M. (Saratov)

Nonlinear conical gas flow. Prikl.mat. i mekh. 22 no.6:781-788 N-D '58. (MIRA 11:12)

(Gas flow)

BULAKH, B.M. (Saratov)

Comments on A. Ferri's report "Recent theoretical work in supersonic aerodynamics at the Polytechnic Institute of Brooklyn." Prikl. mat. i mekh. 23 no.3:576-580 My-Je '59. (MIRA 12:5)

(Aerodynamics, Supersonic)

BULAKH, B. M. (Saratov)

"Nonlinear Conical Gas Flows."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

S/124/62/000/011/005/017
D234/D308

AUTHOR: Bulakh, B. M.

TITLE: Note on the lifting force of a wing with rectilinear rear edge in a supersonic stream

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 11, 1962, 17, abstract 11B109 (Uch. zap. Saratovsk. un-t, 1961, 70, 139-144)

TEXT: The author considers the problem of determining the lifting force of a wing with arbitrary front edge and rectilinear rear edge, placed on a fuselage with arbitrary cross-section, in a linearized supersonic stream, provided that all edges are supersonic and the rear edge is perpendicular to the direction of undisturbed stream. On the basis of the momentum theorem the author has obtained expressions for the coefficients of lifting force, resistance and pitching of an isolated cylindrical wing whose generating lines are perpendicular to the undisturbed stream. If the potential of disturbance velocities is known for the nose part of the fuse-

Card 1/2

Note on the lifting ...

S/124/62/000/011/005/017
D234/D308

lage, then the expressions obtained make it possible to obtain the above characteristics without solving the boundary problem of wing and fuselage interference. [Abstracter's note: Complete translation.]

/B

Card 2/2

BULAKH, B.M. (Saratov)

Position of the front shock wave due to supersonic gas flow about an elongated body of an arbitrary form. Inzh.zhur. 1 no.3:158-160 '61. (MIRA 15:2)
(Aerodynamics, supersonic)(Shock waves)

28497
S/040/61/025/002/006/022
D201/D302

10.1210

AUTHOR: Bulakh, B.M. (Saratov)

TITLE: Some questions of the theory of conical flow

PERIODICAL: Prikladnaya matematika i mekhanika, v. 25, no. 2, 1961, 229 - 241

TEXT: A flat triangular wing with angle of attack δ to a non-viscous gas which has velocity W_1, Mach number $M_1 > 1$, velocity of sound a_1 is considered. The edge of the wing is at supersonic flow "over" and "under" the wing may be considered separately. For conical flow, the components of velocity, u, v, w, the entropy S, and the pressure p depend on the variables of the angle $\xi = x/z$, $\eta = y/z$. The vortices of conical flow may then be described by

$$L_1 = (u - \xi w)\left(\frac{u^2+v^2+w^2}{2}\right)_\xi + (v - \eta w)\left(\frac{u^2+v^2+w^2}{2}\right)_\eta + \\ + a^2(\xi w_\xi + \eta w_\eta - u_\xi - v_\eta) = 0 \qquad (1.1)$$

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$$L_2 = (u - \xi w)\, s_\xi + (v - \eta w)\, s_\eta = 0$$

$$L_3 = \xi\,[(u - \xi w)\, u_\xi + (v - \eta w)\, u_\eta] + \eta\,[(u - \xi w)\, v_\xi + (v - \eta w)\, v_\eta] + \\ + (u - \xi w)\, w_\xi + (v - \eta w)\, w_\eta = 0 \qquad (1.1)$$

$$L_4 = w\,\{\xi\,[(u - \xi w)\, u_\eta - (v - \eta w)\, u_\xi] + \eta\,[(u - \xi w)\, v_\eta - (v - \eta w)\, v_\xi] + \\ + (u - \xi w)\, w_\eta - (v - \eta w)\, w_\xi\} + [(u - \xi w)^2 + (v - \eta w)^2]\,(u_\eta - v_\xi) + \\ + a^2\,[(u - \xi w)\, s_\eta - (v - \eta w)\, s_\xi] = 0$$

For non-vortex flow, the velocity potential φ and the conical potential F satisfy

$$F(\xi, \eta) = z^{-1}\varphi(x, y, z),$$

$$\{a^2(1 + r^2) - [rF - (1 + r^2)\, F_r]^2\}\, F_{rr} + 2\left[F - \left(r + \frac{1}{r}\right) F_r\right] F_\theta \times \\ \times \left(\frac{1}{r} F_{r\theta} - \frac{1}{r^2} F_\theta\right) + \left(a^2 - \frac{1}{r^2} F_\theta^2\right)\left(\frac{1}{r^2} F_{\theta\theta} + \frac{1}{r} F_r\right) = 0 \qquad (1.2)$$

$$(r = \sqrt{\xi^2 + \eta^2},\ \operatorname{tg}\theta = \eta / \xi)$$

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(1.2) is of the elliptic (hyperbolic) type if the projection of the velocity on the plane perpendicular to the radius vector of a point in xyz space is less (greater) than the speed of sound. If $L_2 = L_3 = 0$ (1.1) becomes the case of "linear current", and the equation

$$\frac{d\xi}{u - \xi w} = \frac{d\eta}{v - \eta w} \qquad (1.3)$$

gives two characteristics of (1.1). The graph for a triangular wing in the ξ, η plane is given. Only the half of the flow $\xi > 0$ is considered. The question of vortex and non-vortex conical flow has an analogue for plane supersonic flow of a gas. An example, (Fig. 4) is considered. Here 4a represents a symmetric profile, and 4b a symmetric triangular wing, in a supersonic flow of gas with angle of attack zero. Near the plane part of the wing there are plane discontinuities 0-2 after which there is uniform stream motion. The lines 1-2, 2-3 are characteristics. Distortion of the wing, beginning at the point 1, leads to the distortion of 2-5,

and shows the vortex flow united to the stream without vortices, 2-4. For plane flow

$$L_\beta = v(u_y - v_x) - a^2 s_x = 0, \qquad L_\theta = us_x + vs_y = 0$$
$$L_\gamma = (a^2 - u^2)u_x - uv(u_y + v_x) + (a^2 - v^2)v_y = 0 \qquad (1.14)$$

As in the previous case, there will be a shock-wave. The condition for the shock-wave to become weakened and transformed into a Mach cone is

$$r_0 = \eta_0 = (M_0^2 - 1)^{-1/2} \text{ and } \theta = \theta_0 = 1/2\pi.$$

The solution in the neighborhood of a Mach cone is then given. The solution after the shock-wave is written in the form

$$u = u(\sigma)\xi^3 + \ldots, \quad v = v(\sigma)\xi^2 + \ldots, \quad w = w_0 + w(\sigma)\xi^2 + \ldots,$$
$$s = s(\sigma)\xi^6 + \ldots, \quad \sigma = \frac{\eta_0 - \eta}{\xi^2}\eta_0$$

The principal term of the solution is non-vortex, and on the line

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of flow, originating from the point 2, ($\sigma \to \infty$) the solution has the form

$$u = b_2 \frac{w_0}{\gamma+1} \frac{(M_0^2-1)^{1/2}}{M_0^4} (\eta_0-\eta)^{1/2} + \ldots, \qquad (2.31)$$

$$v = -b_1 \frac{2w_0}{\gamma+1} \frac{(M_0^2-1)^2}{M_0^4} (\eta_0-\eta) + \ldots, \quad w = w_0 - \eta_0 v + \ldots$$

In conclusion, the author thanks S.N. Fal'kovich for his help.
There are 8 figures and 5 Soviet-bloc references.

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AUTHOR: Bulakh, B.M. (Saratov)

TITLE: On some properties of supersonic conical flows

PERIODICAL: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk. Prikladnaya matematika i mekhanika, v. 25, no. 3, 1961, 478 - 484

TEXT: The author obtains the influence of the shock wave generated by a conical body wholly within the Mach cone, constructed for a non-turbulent homogeneous supersonic gas flow, on the conical field of flow, in terms of higher approximations. If the stream velocity is W_1, the Mach number M_1, velocity of sound a_1, the origin of Cartesian coordinates at the vertex of the cone and z direction = direction of non-disturbed flow and if $\xi = x/z$, $\eta = y/z$ and on the $\xi\eta$ plane $\xi = r \cos\theta$ and $\eta = r \sin\theta$, then the velocity potential $\varphi(x, y, z)$ of the conic flow is $\varphi = zF(r, \theta)$ where F satisfies

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$$\{a^2(1+r^2)-[rF-(1+r^2)F_r]^2\}F_{rr}+2\left[F-r\left(\frac{1}{r}+r\right)\right]F_\theta\left(\frac{1}{r}F_{r\theta}-\frac{1}{r^2}F_\theta\right)+$$
$$+\left(a^2-\frac{1}{r^2}F_\theta^2\right)\left(\frac{1}{r^2}F_{\theta\theta}+\frac{1}{r}F_r\right)=0 \qquad (1.1) \qquad (1.1)$$
$$a^2=a_1^2-\frac{\gamma-1}{2}\left[F_r^2+\frac{1}{r^2}F_\theta^2+(F-rF_r)^2-W_1^2\right]$$

where a = velocity of sound γ = ratio of specific heats. The potential F is sought as a parametric expansion. From the conditions

$$r=r_s(\theta), \quad F=W_1, \quad F_r=-\frac{2W_1}{(\gamma+1)M_1^2}\frac{r_s^2(1-r_s^2m_1^2)+r_s'^2}{r_s[r_s^2(1+r_s^2)+r_s'^2]} \qquad (2.1)$$

where $r_s' = \partial r_s/\partial\theta$ and Eq. (1.1)

$$F_r=\frac{4W_1}{\gamma+1}\frac{m_1^4}{M_1^4}\lambda\varphi+O(\lambda^2), \qquad F_{rr}=-\frac{2W_1}{\gamma+1}\frac{m_1^4}{M_1^4}+O(\lambda)$$

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results, where λ is small, $F_{rr} \neq \sigma'$ shows the existence of the "boundary layer" which also appears in the vicinity of the Mach cone as shown by

$$F = W_1 + \beta_1 (r_1 - r)^2 + \gamma_1 (r_1 - r)^3 \ln (r_1 - r) + C(\theta)(r_1 - r)^3 + \ldots \qquad (2.2)$$

where $\beta_1 = \frac{W_1}{2(\gamma+1)} \frac{m_1^4}{M_1^4}$, $\gamma_1 = \frac{W_1}{6(\gamma+1)^2} \frac{m_1^5}{M_1^6} [3m_1^2 - (\gamma+1)(1-m_1^2)]$

$C(\theta)$ - arbitrary function, $F_{rr} = 2\beta_1 \neq 0$ at $r = r_1$. F is sought in the form of a series Eq.

$$F = W_1 + \lambda^2 F_1(\theta, t, \lambda) + \lambda^2 F_2(\theta, t, \lambda) + \ldots \quad (t = \frac{r - r_1}{\lambda \varphi(\theta, \lambda)}). \qquad (2.3)$$

Function y(t) is introduced by

$$F_1 = \varphi^2(\theta, \lambda) \frac{W_1}{\gamma + 1} \frac{m_1^4}{M_1^4} y(t)$$

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